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U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

VMF-492-A

TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371

U.S. APPLICATION NO. (If known, see 37 CFR 1.5)

Unknown 09/889079

INTERNATIONAL APPLICATION NO.
PCT/FR00/00045

INTERNATIONAL FILING DATE
11 January 2000

PRIORITY DATE CLAIMED
11 January 1999

TITLE OF INVENTION

MOTOR VEHICLE WIPER GEAR MOTOR WITH BASE AND CORE

APPLICANT(S) FOR DO/EO/US

Dominique Gertrand, and Pascal Renoux

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (21) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371(c)(2))
 - a. ☒ is attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ has been communicated by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☒ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
 - a. ☒ is attached hereto.
 - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☐ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3))
 - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ have been communicated by the International Bureau.
 - c. ☐ have not been made: however, the time limit for making such amendments has NOT expired.
 - d. ☐ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371 (c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371(c)(4)).
10. ☐ An English language translation of the annexes of the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)).

Items 11 to 20 below concern document(s) or information included:

11. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
12. ☒ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
13. ☒ A **FIRST** preliminary amendment.
14. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
15. ☐ A substitute specification.
16. ☐ A change of power of attorney and/or address letter.
17. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
18. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
19. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
20. ☐ Other items or information:

U.S. APPLICATION NO. (37 CFR 1.53) 09/089079		INTERNATIONAL APPLICATION NO. PCT/FR00/00045		ATTORNEY'S DOCKET NUMBER WMF-492-A	
21. <input checked="" type="checkbox"/> The following fees are submitted:				CALCULATIONS PTO USE ONLY	
BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)):					
Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO.				\$1000.00	
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO				\$860.00	
International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO				\$710.00	
International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4)				\$690.00	
International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4)				\$100.00	
ENTER APPROPRIATE BASIC FEE AMOUNT =				\$ 860	
Surcharge of \$130.00 for furnishing the oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(e)).				\$	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE	\$	
Total claims	11 - 20 =		x \$18.00	\$	
Independent claims	2 - 3 =		x \$80.00	\$	
MULTIPLE DEPENDENT CLAIM(S) (if applicable)			+ \$270.00	\$	
TOTAL OF ABOVE CALCULATIONS =				\$ 860	
<input type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27. The fees indicated above are reduced by 1/2.				\$ 0	
SUBTOTAL =				\$ 860	
Processing fee of \$130.00 for furnishing the English translation later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 months from the earliest claimed priority date (37 CFR 1.492(f)).				\$ 0	
TOTAL NATIONAL FEE =				\$ 860	
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31). \$40.00 per property +				\$ 40	
TOTAL FEES ENCLOSED =				\$ 900	
				Amount to be refunded:	\$
				charged:	\$
a. <input checked="" type="checkbox"/> A check in the amount of \$ <u>900.00</u> to cover the above fees is enclosed.					
b. <input type="checkbox"/> Please charge my Deposit Account No. _____ in the amount of \$ _____ to cover the above fees. A duplicate copy of this sheet is enclosed.					
c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. <u>25-0115</u> A duplicate copy of this sheet is enclosed.					
d. <input type="checkbox"/> Fees are to be charged to a credit card. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.					
NOTE: Where an appropriate time limit under 37 CFR 1.494 or 1.495 has not been met, a petition to revive (37 CFR 1.137 (a) or (b)) must be filed and granted to restore the application to pending status.					
SEND ALL CORRESPONDENCE TO: Andrew R. Basile YOUNG & BASILE, PC 3001 West Big Beaver Road Suite 624 Troy, MI 48084 248-649-3333					
				SIGNATURE William M. Hanlon, Jr.	
				NAME 28422	
				REGISTRATION NUMBER	

Our Reference: VMF-492-A

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Valeo Electrical Systems, Inc.
Serial Number: Unknown
Filing Date: Concurrent
Examiner/Art Group Unit: Unknown/Unknown
Title: MOTOR VEHICLE WIPER GEAR
WITH BASE AND COVER

PRELIMINARY AMENDMENT

Assistant Commissioner of Patents
Washington, D.C. 20231

Sir:

Entry of this Preliminary Amendment, before examination of the application, is respectfully requested.

In the specification:

After the claims, start a new page and insert:

ABSTRACT

A motor vehicle wiper gear motor includes a motor core and a reduction gear base, the core and the base having metal parts. The gear motor has a joint interposed between the core and the base, the joint including a sealing material and at least a metal element in contact with the metal parts of the core and the base.

In the claims:

Please cancel claims 1-11, and substitute therefore the following new claims:

12. A motor vehicle wiper gear motor comprising a core motor and a reduction gear base, the core and base having metal parts, characterized by comprising a joint interposed between the core and the base, the joint including a

sealing material and at least a metal element in contact with metal parts of the core and the base.

13. The gear motor according to claim 12, characterized by having a fixation orifice adjoining the metal element.

14. The gear motor according to claim 12, characterized by the metal element being embedded in the sealing material.

15. The gear motor according to claim 12, characterized by there being two metal elements, the two metal elements being disjointed.

16. The gear motor according to claim 12, characterized by including definitive fixation means for the joint to the core motor and, temporary fixation means for the joint to one of the core and the base.

17. The gear motor according to claim 16, characterized by the temporary fixation means containing, at least a clipping lug on the joint.

18. The gear motor according to claim 17, characterized by having an access orifice in the lug in order to remove the temporary fixation means.

19. The gear motor according to claim 13, characterized by cooperating the fixation means of the joint to the core motor and the stop means for angular positioning of the joint in relation to the core motor around an axis of the core motor.

20. The gear motor according to claim 12, characterized by one of the core and the base have at least a cylindrical sector, the joint having an opening able to receive the cylindrical sector and at least a stop projecting into the opening.

21. The gear motor according to claim 12, characterized by the joint sealing material containing a plastic material.

22. A manufacturing process of a gear motor according to claim 16, characterized by comprising steps of:

fixing the joint to one of the core and the base by the temporary fixation means;

returning the joint to the other of the core and the base; and

fixing the joint, the core, and the base by the definitive fixation means.

SCANNED, # 14

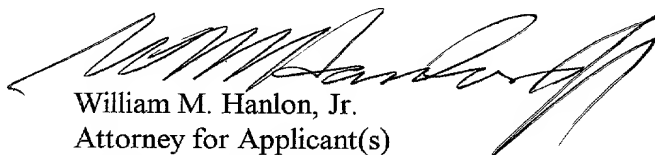
REMARKS

After entry of this amendment, claims 1-11 have been cancelled and claims 12-22 have been added. The new claims are to define the invention and idiomatic English and according to U.S. claim drafting format. The new claims are not submitted to address any issues of patentability.

It is submitted that this Amendment has antecedent basis in the application as originally filed, including the specification, claims and drawings, and that this Amendment does not add any new subject matter to the application. Consideration of the application as amended is requested.

Respectfully submitted,

YOUNG, BASILE, HANLON, MacFARLANE, WOOD
& HELMHOLDT, P.C.



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JC18 Rec'd PCT/PTO 11 JUL 2001
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MOTOR VEHICLE WIPER GEAR WITH
BASE AND COVER

[Motor vehicle wiper gear motor with base and core.]

BACKGROUND

This invention concerns wiping motor vehicle gear motors

One knows of such gear ^{motors} [motor] containing a motor equipped with a core and a reduction gear base equipped with a base rigidly fixed to the core.

A goal of the invention is to furnish a gear motor at once less noisy, in which there exists an electric current between the base and the core ^{elements} [and] allowing a precise positioning of these two.

SUMMARY

In order to realize this goal, ^{including} one conceives of, according to the invention, a motor vehicle wiper motor [vehicle, comprises] a motor core and a reduction gear base, the core and base having metal parts [the]. ^{The} gear motor comprises a joint interposed between the core and the base, the joint comprising a sealing metal and at least a metal element in contact with the metal parts of the core and the base.

Thus, the sealing material reduces the noise. In addition, the metal element of the joint acts as a straight stop for a relatively precise positioning of the core and the base. In addition, it assures an electric ^{components} current between these two, for example, for a uniform mass potential in the entire gear case of the reduction gear motor.

Advantageously, the gear motor has a fixing orifice contiguous to the metal element.

Advantageously, the metal element is imbedded in the sealing material.

Advantageously, the metal elements are at least two and are disjointed.

Advantageously, the gear motor comprises definitive fixing from the joint to the gear motor, and, in addition, the tentative fixing of the joint to either of the core or the base.

Thus, the joint is tentatively fixed to one of the pieces by waiting for the piercing of the other piece. One thus facilitates the management of the chain assembly, by reducing the number of separate pieces.

Advantageously, the tentative fixing means comprises, specifically on the joint, at least a clipsage lug.

Advantageously, the gear motor has an access orifice in the lug in order to remove the temporary fixing means.

Advantageously, the gear motor contains the fixing means of the gear motor joint, and, in addition, the abutment means for the angular position in relation to the gear motor around an axis of the gear motor.

Thus, one makes the positioning of the joint easier in relation to the gear motor before the fixing via the definitive fixing means. This assures, for example, the alignment of the holes of the screw.

Advantageously, one of either the core or the base has at least a cylindrical sector, the joint having an opening able to receive the cylindrical sector projecting in the opening.

Advantageously, the joint material comprises a plastic material.

One also creates, according to the invention, ^{due} [comprises] a procedure consisting of the following steps:

- fixing the joint to one of the core and the base ^{due} [thanks] to the temporary fixing means;
- bringing the other of the core or the base onto the joint; and
- fixing between them the joint, the core, and the base ^{due} [thanks] to the definitive fixing means.

BRIEF DESCRIPTION OF THE DRAWING

The other characteristics and advantages of the invention will also appear more clearly in the following description of a preferred method of production given in a non-limiting example. In the attached drawings:

- ^{Figure} figure 1 is a perspective view of a gear motor according to a preferred method of production of the invention;
- ^{Figure} figure 2 is a partial spread view in perspective of the gear motor of figure 1;
- ^{Figure} figure 3 is a perspective view of the base of figure 1;
- ^{Figure} figure 4 is a view of the end of the core of figure 1;
- ^{Figure} figure 5 is an elevation view of the joint of figure 1;
- ^{Figures} figures 6 and 7 are detailed views of the joint of figure 5 cut according to the planes VI-VI and VII-VII.

^{in Figures} Illustrated on figures 1 and 2, a motor vehicle wiper gear motor 2. ^{Figure} It comprises a motor having a core 4, and a reduction gear base having a base 6 and a closing plate 8 blocking an opening 10 of the base, visible ^{Figure} in figure 3, and fixed to the base via clipsage means, tabs and lugs 12. The core 4, the base 6, and the closing plate 8 make up a closed crank case ^{for} for the gear motor 2. Here, the core and the base are in metal, the closing plate 8 being a plastic material. In a known manner, the core 4 encloses a stator and a rotor, a shaft of which penetrates into the gear motor in order to, after reduction, transmit a rotational movement to an exit shaft designed to guide ^{the} the wiper blade.

^{Figures} In reference to figures 1, 2, and 4, the core 4 has a generally cylindrical form blocked at an axial end and open at another axial end. This latter has an annular flat edge 16 of the core and has two lugs or tabs 18 diametrically opposite from each other on both sides of an axis 20 of the core.

^{Figures} In reference to figures 1 to 3, the base 6 has a cylindrical part 22 having an open axial end having an edge 24 that is notably identical to that of the core and equipped with two tabs 26. The base has three cylindrical sectors 28 extending the wall 22 of the base following its axis and projecting from the edge 24.

These sectors 28 are disjointed and spaced such that they are arranged with three free spaces.

^{Figures} In reference notably to figures 5 to 7, the gear motor also comprises a joint 30 generally ^{plate-like} plate-like and generally having the shape of the edges 14 and 24, that is to say, a diamond-shaped form of which the closest corners are rounded or of a circular shape with two lugs 32 diametrically opposite in relation to an axis 20 of the joint. The joint has at its center a circular opening 34.

The joint 30 is able to be interposed following the axial direction between the edge 14 of the core and the edge 24 of the base ⁶, coaxially to the edge of the base ⁶. Each lug 32 of the joint is interposed between a lug 18 of the core and a tab 26 of the base. The six tabs ²⁶ have orifices 36 able to be in mutual coincidence in this position. The wall of the joint 30 is in contact and is a surface support on each of the two flat faces with respectively the face of the edge 14 of the core ⁴ and the face of the edge 24 of the base ⁶.

The joint 30 has a peripheral edge 38 projecting from the wall, in the space of the side of the wall designed to be turned towards the core 4. While the gear motor ² is mounted, this flange 38 covers the edge of the edge 14 of the core ⁴. The flange ³⁸ has a shape flared towards the exterior. ^{The flange 38} carries hooks or lugs 40 projecting from the flange ³⁸ while simultaneously following the axial direction and radial direction towards the interior. These lugs 40, here there are four, reach to the junction of the tabs 32 with the circular zones of the joint. Thanks to the relative elasticity of the ^{forms the lugs 40} plastic material that makes them up, ^{the lugs 40} they are able to push against the rear face 42 of the edge 14 of the core ⁴ in order to temporarily fit the joint 30 to the core ⁴ via clipping.

The joint 30 comprises angular sections in relief or stops 44, here there are two, made up of extensions in the wall of the joint projecting in the opening 34 in the direction of the axis 20. Outside of the fixing of the joint 30 to the base 6, these ^{Steps or} abutments 44 are inserted in the spaces between the cylindrical sectors 28. By butting up against these spaces towards the rotation of the joint in relation to the base ⁶ around the axis 20, ^{the stops 44} they facilitate the positioning of the joint, notably by directly placing the orifices 36 of the four tabs ³² in coincidence.

The joint comprises two elements 46 in metal, here in steel, at the level of the tabs 32. Each element 46 has a round ring shape and is characterized by having one of the orifices 36 at its center. Each element 46 has a peripheral rib 48 radially projecting from its external edge. Each ^{rib 48} ridge is embedded in the plastic material of the sealing ^{quality of the} material of the joint. This material can be a plastic material or an elastomer. It is made up, here, of an alloy of copolymer butadiene styrene block (SBS) and polypropylene (PP). The elements 46 are thus made up of inserts partially embedded in the plastic material molded ^{by this} material ^{latter}. The sealing material of the joint allows the reduction of the noise of the gear motor ². The sealing material advantageously has a life of 43 shores D.

Each element 46 has two flat faces coming into surface contact with respectively the face of the edge 14 of the core ⁴ and the face of the edge 24 of the base ⁶, thus forming a straight stop for the relative positioning, following the axis 20, of the base ⁶ and the core ⁴, and assuring, in addition, the electric current between the base ⁶ and core ⁴. Each element 46 has a thickness e less than the thickness f of the wall in plastic material of the joint 30 in anticipation of the crushing of this material during the tightening of the joint between the base ⁶ and the core ⁴ for the sealing of the gear motor ² to water and ^(to) air.

During the fabrication of the gear motor², one first fits the joint 30 to the core 4 via lugs 40 making up the temporary fixation means. One can then manipulate, store or transport the core⁴ and the joint as one piece. One then returns the base 6 in order to interpose the joint between the base and the core⁴. One fixes these three elements by screwing screws 50 crossing the tabs 26 of the core⁴ and of the joint⁶ and taken with the tabs 26 of the base⁶. The screws 50 make up the definitive fixation means. One will note that the lugs 40 can reside snapped onto the core⁴ on the gear motor² in its final state.

The joint 30 has, in its wall, orifices 52 at the base of the respective lugs 40 in order to allow the introduction of a screwing tool to remove each lug from the core⁴ if the separation from the joint and from the core⁴ is necessary at one moment or another.

One can put in place the characteristics relative to the temporary fixation of the joint 30 to one of the core⁴ and the base⁶ and/or the stops 44, independent of the presence of the metallic elements 46 in the joint.

New page

Claims

what is claimed is:

1. Motor vehicle wiper gear motor, comprising a core motor (4) and a reduction gear base (6), the core and the base having metal parts, characterized by comprising a joint (30) interposed between the core (4) and the base (6), the joint comprising a sealing material and at least a metal element (46) in contact with metal parts of the core and the base.
2. Gear motor according to claim 1, characterized by having a fixation orifice (36) adjoining the metal element (46).
3. Gear motor according to claim 1 or 2, characterized by the metal element (46) being embedded in the sealing material.
4. Gear motor according to one of claims 1 to 3, characterized by there being two metal elements (46) and they are disjointed.
5. Gear motor according to one of claims 1 to 4, characterized by comprising definitive fixation means (50) of the joint (30) to the gear motor, and in addition the temporary fixation means (40) of the joint (30) to one of the core (4) or the base (6).
6. Gear motor according to claim 5, characterized by the temporary fixation means containing, notably on the joint (30), at least a clipping lug (40).
7. Gear motor according to claim 6, characterized by having an access orifice (52) in the lug (40) in order to remove the temporary fixation means.
8. Gear motor according to one of claims 1 to 7, characterized by comprising the fixation means (40, 50) of the joint (30) to the gear motor, and in addition the stop means (44) for the angular positioning of the joint (30) in relation to the gear motor around an axis (20) of the gear motor.

9. Gear motor according to one of claims 1 to 8, characterized by one of either the core (4) or the base (6) have at least a cylindrical sector (28), the joint having an opening (34) able to receive the cylindrical sector and at least a stop (44) projecting in the opening.

10. Gear motor according to one of claims 1 to 9, characterized by the joint material (30) containing a plastic material.

11. Manufacturing process of a gear motor to one of claims 5 to 7, characterized by comprising steps consisting of:

- fixing the joint (30) to one (4) of either the core (4) or the base (6) thanks to the temporary fixation means (40);
- returning the joint (30) to the other (6) between the core and the base; and
- fixation between them the joint, the core, and the base thanks to the definitive fixation means (50).

During the fabrication of the gear motor, one first fits the joint 30 to the core 4 via lugs 40 making up the temporary fixation means. One can then manipulate, store or transport the core and the joint as one piece. One then returns the base 6 in order to interpose the joint between the base and the core. One fixes these three elements by screwing screws 50 crossing the tabs 26 of the core and of the joint and taken with the tabs 26 of the base. The screws 50 make up the definitive fixation means. One will note that the lugs 40 can reside snapped onto the core on the gear motor in its final state.

The joint 30 has, in its wall, orifices 52 at the base of the respective lugs 40 in order to allow the introduction of a screwing tool to remove each lug from the core if the separation from the joint and from the core is necessary at one moment or another.

One can put in place the characteristics relative to the temporary fixation of the joint 30 to one of the core and the base and/or the stops 44, independent of the presence of the metallic elements 46 in the joint.

Claims

- cancel 11-11 and add new*
- Prel. Amendment*
- 12 ~~1~~ Motor vehicle wiper gear motor, comprising a core motor (4) and a reduction gear base (6), the core and the base having metal parts, characterized by comprising a joint (30) interposed between the core (4) and the base (6), the joint ^{including} comprising a sealing material and at least a metal element (46) in contact with the metal parts of the core and the base.
- 13 ~~2~~ Gear motor according to claim 1, characterized by having a fixation orifice (36) adjoining the metal element (46).
- 14 ~~3~~ Gear motor according to claim 1 or 2, characterized by the metal element (46) being embedded in the sealing material.
- 15 ~~4~~ Gear motor according to one of claims 1 to 3, characterized by there being two metal elements (46) and they are disjointed.
- 16 ~~5~~ Gear motor according to one of claims 1 to 4, characterized by comprising definitive fixation means (50) of the joint (30) to the ^{core} gear motor, and in addition the temporary fixation means (40) of the joint (30) to one of the core (4) or the base (6).
- 17 ~~6~~ Gear motor according to claim 5, characterized by the temporary fixation means containing, notably on the joint (30), at least a clipping lug (40).
- 18 ~~7~~ Gear motor according to claim 6, characterized by having an access orifice (52) in the lug (40) in order to remove the temporary fixation means.
- 19 ~~8~~ Gear motor according to one of claims 1 to 7, characterized by comprising the fixation means (40, 50) of the joint (30) to the ^{core} gear motor, and in addition the stop means (44) for the angular positioning of the joint (30) in relation to the ^{core} gear motor around an axis (20) of the ^{core} gear motor.

Motor vehicle wiper gear motor with base and core.

This invention concerns wiping motor vehicle gear motors

One knows of such gear motor, containing a motor equipped with a core and a reduction gear base equipped with a base rigidly fixed to the core.

A goal of the invention is to furnish a gear motor at once less noisy, in which there exists an electric current between the base and the core and allowing a precise positioning of these two.

In order to realize this goal, one conceives of, according to the invention, a motor vehicle wiper motor vehicle, comprises a motor core and a reduction gear base, the core and base having metal parts, the gear motor comprises a joint interposed between the core and the base, the joint comprising a sealing metal and at least a metal element in contact with the metal parts of the core and the base.

Thus, the sealing material reduces the noise. In addition, the metal element of the joint acts as a straight stop for a relatively precise positioning of the core and the base. In addition, it assures an electric current between these two, for example for a uniform mass potential in the entire gear case of the reduction gear motor.

Advantageously, the gear motor has a fixing orifice contiguous to the metal element.

Advantageously, the metal element is imbedded in the sealing material.

Advantageously, the metal elements are at least two and are disjointed.

Advantageously, the gear motor comprises definitive fixing from the joint to the gear motor, and in addition the tentative fixing of the joint to either of the core or the base.

Thus, the joint is tentatively fixed to one of the pieces by waiting for the piercing of the other piece. One thus facilitates the management of the chain assembly, by reducing the number of separate pieces.

Advantageously, the tentative fixing means comprises, specifically on the joint, at least a clipsage lug.

Advantageously, the gear motor has an access orifice in the lug in order to remove the temporary fixing means.

Advantageously, the gear motor contains the fixing means of the gear motor joint, and in addition the abutment means for the angular position in relation to the gear motor around an axis of the gear motor.

Thus, one makes the positioning of the joint easier in relation to the gear motor before the fixing via the definitive fixing means. This assures for example the alignment of the holes of the screw.

Advantageously, one of either the core or the base has at least a cylindrical sector, the joint having an opening able to receive the cylindrical sector projecting in the opening.

Advantageously, the joint material comprises a plastic material.

One also creates, according to the invention, comprises a procedure consisting of the following steps:

- fixing the joint to one of the core and the base thanks to the temporary fixing means;
- bringing the other of the core or the base onto the joint; and
- fixing between them the joint, the core, and the base thanks to the definitive fixing means.

The other characteristics and advantages of the invention will also appear more clearly in the following description of a preferred method of production given in a non-limiting example. In the attached drawings:

- figure 1 is a perspective view of a gear motor according to a preferred method of production of the invention;
- figure 2 is a partial spread view in perspective of the gear motor of figure 1;
- figure 3 is a perspective view of the base of figure 1;
- figure 4 is a view of the end of the core of figure 1;
- figure 5 is an elevation view of the joint of figure 1;
- figures 6 and 7 are detailed views of the joint of figure 5 cut according to the planes VI-VI and VII-VII.

Illustrated on figures 1 and 2, a motor vehicle wiper gear motor 2. It comprises a motor having a core 4, and a reduction gear base having a base 6 and a closing plate 8 blocking an opening 10 of the base, visible in figure 3, and fixed to the base via clipsage means, tabs and lugs 12. The core 4, the base 6, and the closing plate 8 make up a closed crank case from the gear motor. Here, the core and the base are in metal, the closing plate 8 being a plastic material. In a known manner, the core 4 encloses a stator and a rotor, a shaft of which penetrates into the gear motor in order to, after reduction, transmit a rotational movement to an exit shaft designed to guide the wiper blade.

In reference to figures 1, 2, and 4, the core 4 has a generally cylindrical form blocked at an axial end and open at another axial end. This latter has an annular flat edge 16 of the core and has two lugs or tabs 18 diametrically opposite from each other on both sides of an axis 20 of the core.

In reference to figures 1 to 3, the base 6 has a cylindrical part 22 having an open axial end having an edge 24 that is notably identical to that of the core and equipped with two tabs 26. The base has three cylindrical sectors 28 extending the wall 22 of the base following its axis and projecting from the edge 24. These sectors 28 are disjointed and spaced such that they are arranged with three free spaces.

In reference notably to figures 5 to 7, the gear motor also comprises a joint 30 generally plate and generally having the shape of the edges 14 and 24, that is to say a diamond-shaped form of which the closest corners are rounded or of a circular shape with two lugs 32 diametrically opposite in relation to an axis 20 of the joint. The joint has at its center a circular opening 34.

The joint 30 is able to be interposed following the axial direction between the edge 14 of the core and the edge 24 of the base, coaxially to the edge of the base. Each lug 32 of the joint is interposed between a lug 18 of the core and a tab 26 of the base. The six tabs have orifices 36 able to be in mutual coincidence in this position. The wall of the joint 30 is in contact and is a surface support on each of the two flat faces with respectively the face of the edge 14 of the core and the face of the edge 24 of the base.

The joint 30 has a peripheral edge 38 projecting from the wall, in the space of the side of the wall designed to be turned towards the core 4. While the gear motor is mounted, this flange 38 covers the edge of the edge 14 of the core. The flange has a shape flared towards the exterior. It carries hooks or lugs 40 projecting from the flange while simultaneously following the axial direction and radial direction towards the interior. These lugs 40, here there are four, reach to the junction of the tabs 32 with the circular zones of the joint. Thanks to the relative elasticity of the plastic material that makes them up, they are able to push against the rear face 42 of the edge 14 of the core in order to temporarily fit the joint 30 to the core via clipping.

The joint 30 comprises angular sections in relief or stops 44, here there are two, made up of extensions in the wall of the joint projecting in the opening 34 in the direction of the axis 20. Outside of the fixing of the joint 30 to the base 6, these abutments 44 are inserted in the spaces between the cylindrical sectors 28. By butting up against these spaces towards the rotation of the joint in relation to the base around the axis 20, they facilitate the positioning of the joint, notably by directly placing the orifices 36 of the four tabs in coincidence.

The joint comprises two elements 46 in metal, here in steel, at the level of the tabs 32. Each element 46 has a round ring shape and is characterized by having one of the orifices 36 at its center. Each element 46 has a peripheral rib 48 radially projecting from its external edge. Each ridge is embedded in the plastic material of the sealing quality of the material of the joint. This material can be a plastic material or an elastomer. It is made up, here, of an alloy of copolymer butadiene styrene block (SBS) and polypropylene (PP). The elements 46 are thus made up of inserts partially embedded in the plastic material molded by this latter. The sealing material of the joint allows the reduction of the noise of the gear motor. The sealing material advantageously has a life of 43 shores D.

Each element 46 has two flat faces coming into surface contact with respectively the face of the edge 14 of the core and the face of the edge 24 of the base, thus forming a straight stop for the relative positioning, following the axis 20, of the base and the core, and assuring, in addition, the electric current between the base and core. Each element 46 has a thickness e less than the thickness f of the wall in plastic material of the joint 30 in anticipation of the crushing of this material during the tightening of the joint between the base and the core for the sealing of the gear motor to water and to air.

During the fabrication of the gear motor, one first fits the joint 30 to the core 4 via lugs 40 making up the temporary fixation means. One can then manipulate, store or transport the core and the joint as one piece. One then returns the base 6 in order to interpose the joint between the base and the core. One fixes these three elements by screwing screws 50 crossing the tabs 26 of the core and of the joint and taken with the tabs 26 of the base. The screws 50 make up the definitive fixation means. One will note that the lugs 40 can reside snapped onto the core on the gear motor in its final state.

The joint 30 has, in its wall, orifices 52 at the base of the respective lugs 40 in order to allow the introduction of a screwing tool to remove each lug from the core if the separation from the joint and from the core is necessary at one moment or another.

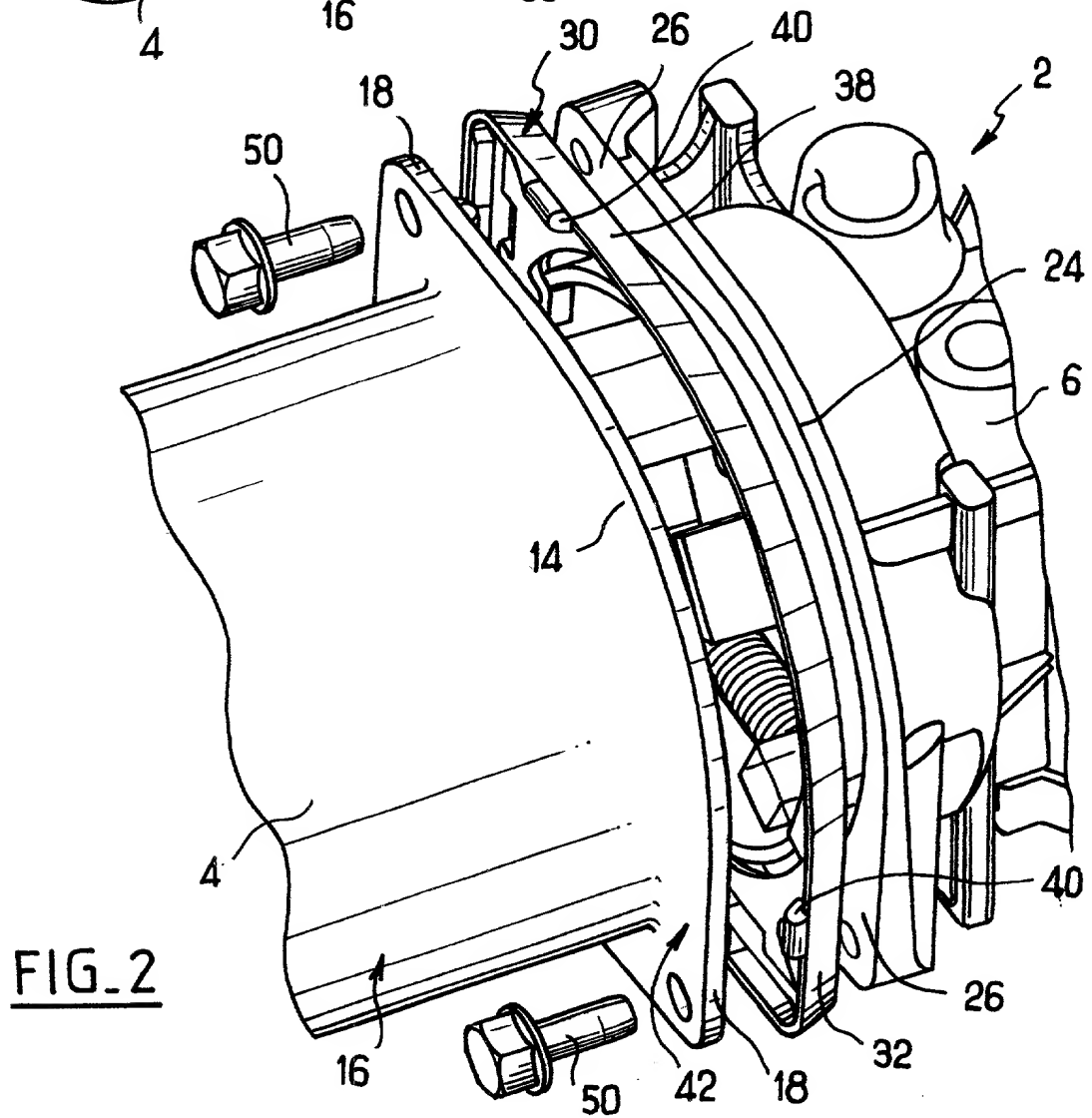
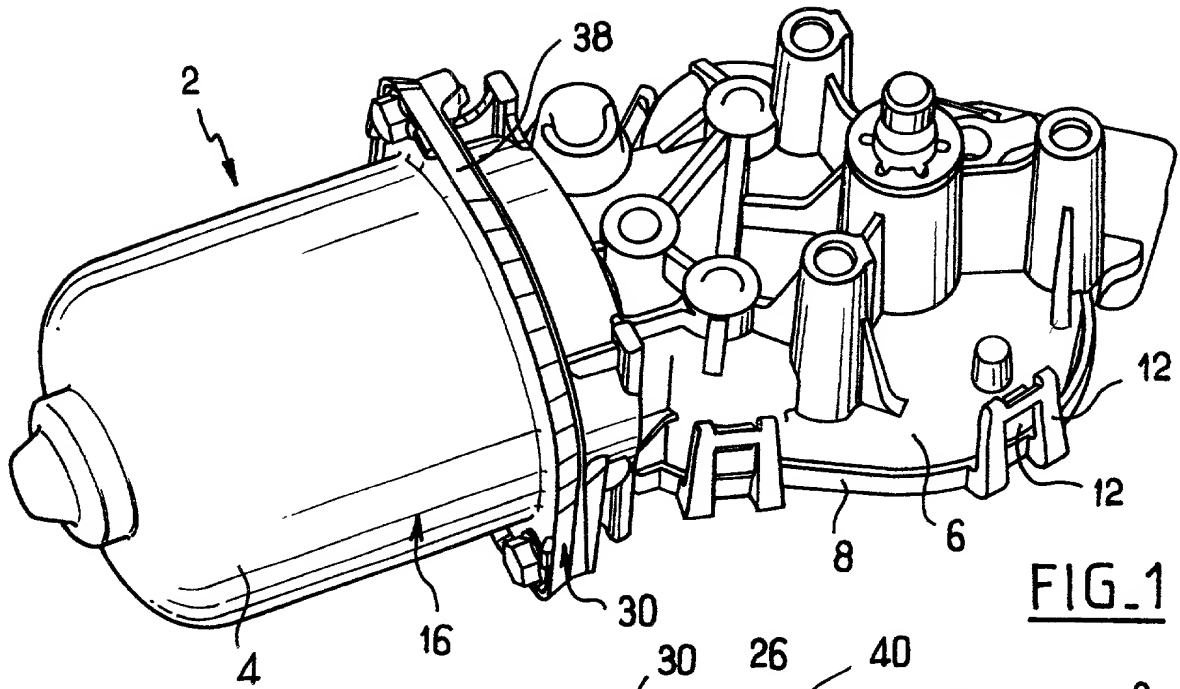
One can put in place the characteristics relative to the temporary fixation of the joint 30 to one of the core and the base and/or the stops 44, independent of the presence of the metallic elements 46 in the joint.

Claims

1. Motor vehicle wiper gear motor, comprising a core motor (4) and a reduction gear base (6), the core and the base having metal parts, characterized by comprising a joint (30) interposed between the core (4) and the base (6), the joint comprising a sealing material and at least a metal element (46) in contact with metal parts of the core and the base.
2. Gear motor according to claim 1, characterized by having a fixation orifice (36) adjoining the metal element (46).
3. Gear motor according to claim 1 or 2, characterized by the metal element (46) being embedded in the sealing material.
4. Gear motor according to one of claims 1 to 3, characterized by there being two metal elements (46) and they are disjointed.
5. Gear motor according to one of claims 1 to 4, characterized by comprising definitive fixation means (50) of the joint (30) to the gear motor, and in addition the temporary fixation means (40) of the joint (30) to one of the core (4) or the base (6).
6. Gear motor according to claim 5, characterized by the temporary fixation means containing, notably on the joint (30), at least a clipping lug (40).
7. Gear motor according to claim 6, characterized by having an access orifice (52) in the lug (40) in order to remove the temporary fixation means.
8. Gear motor according to one of claims 1 to 7, characterized by comprising the fixation means (40, 50) of the joint (30) to the gear motor, and in addition the stop means (44) for the angular positioning of the joint (30) in relation to the gear motor around an axis (20) of the gear motor.

[illegible]

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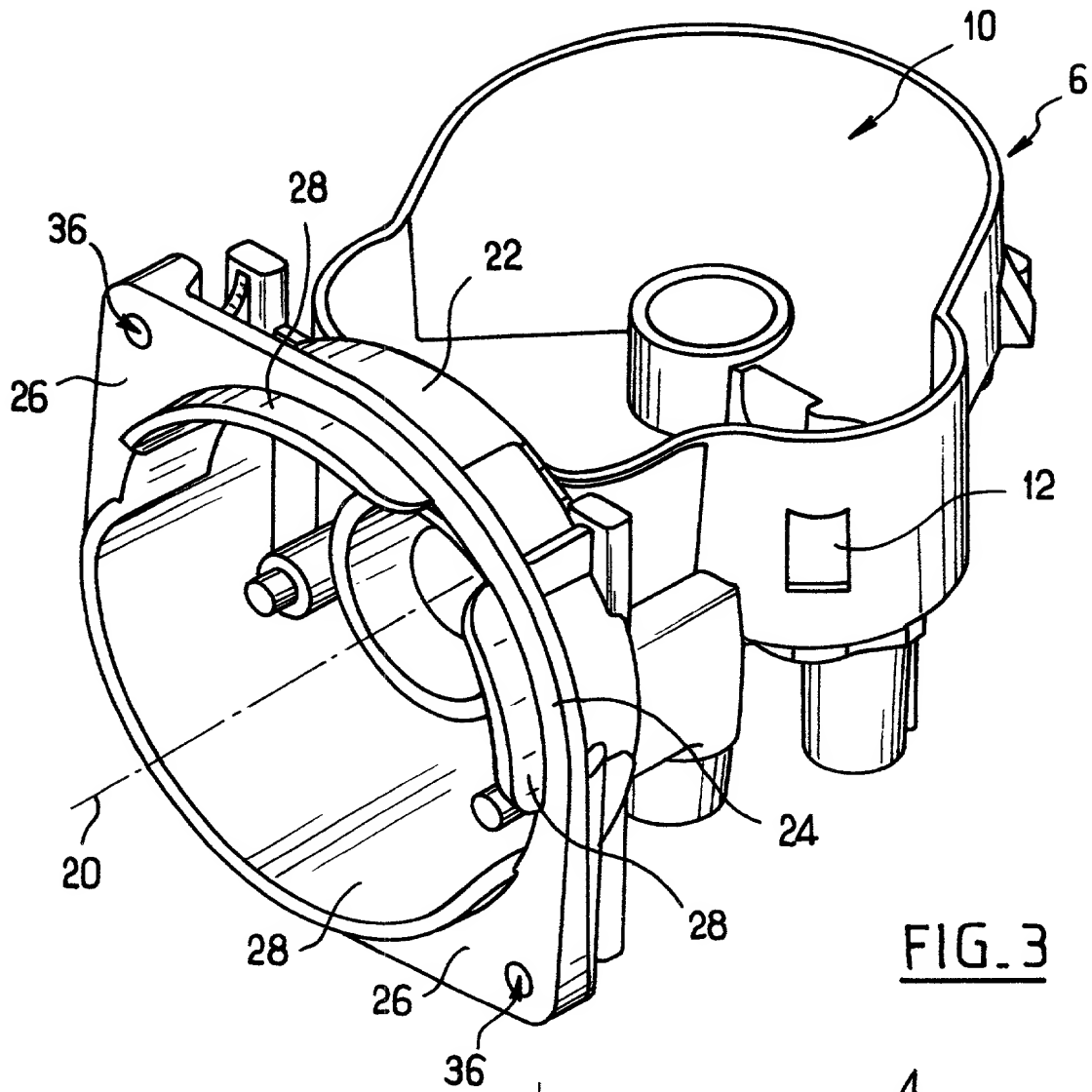


FIG. 3

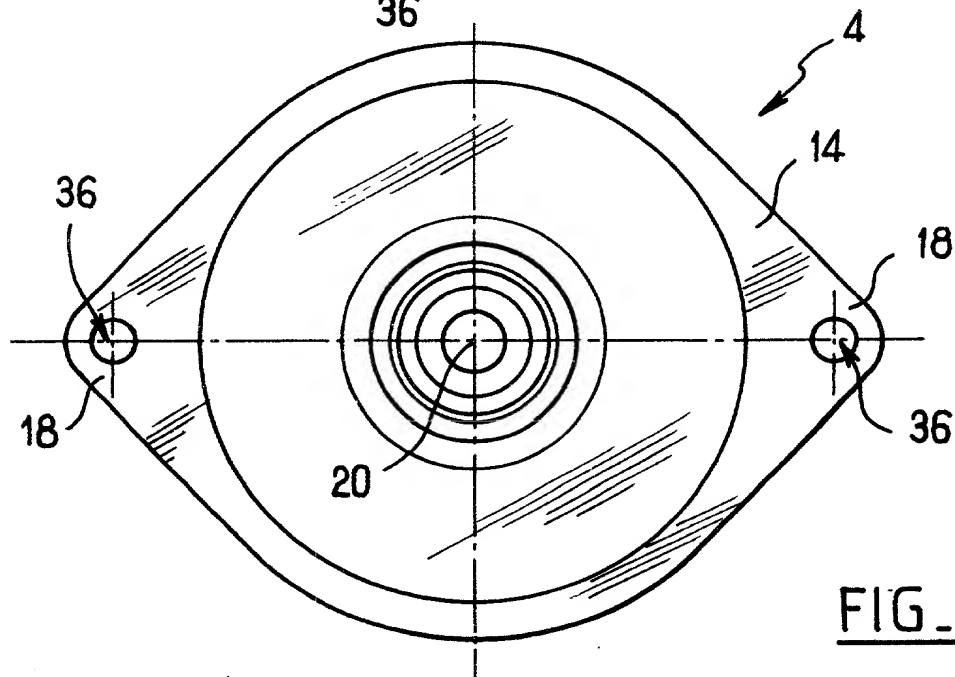


FIG. 4



Our Reference: VMF-492-A (MF0180)

COMBINED DECLARATION AND POWER OF ATTORNEY**DECLARATION:**

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

MOTOR VEHICLE WIPER GEAR MOTOR WITH BASE AND CORE ✓

the specification of which (check only one item below):

☐ is attached hereto.

☐ was filed as United States application Serial No. _____ on _____, and was amended on or through _____ (if applicable).

☒ was filed as PCT international application Number PCT/FR00/00048 on 11 January 2000 ✓ and was amended under PCT Article 19 on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, §119(a)-(d) or §365(b) of any foreign application(s) for patent or inventor's certificate or §365(a) of any PCT international application(s) which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or PCT international application(s) having a filing date before that of the application on which priority is claimed:

Prior Foreign/PCT Application(s) and any Priority Claims Under 35 U.S.C. §119:

Priority Claimed

<u>99/00185</u> ✓	<u>France</u> ✓	<u>11 January 1999</u> ✓	<input checked="" type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(Day/Mo/Yr Filed)	Yes	No
_____	_____	_____	<input type="checkbox"/>	<input type="checkbox"/>
(Number)	(Country)	(Day/Mo/Yr Filed)	Yes	No

I hereby claim the benefit under 35 U.S.C. §119(e) of any United States provisional application(s) listed below.

(Application Number) (Filing Date)

(Application Number) (Filing Date)

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) or §365(c) of any PCT international application(s) designating the United States of America, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT international application(s) in the manner provided by the first paragraph of Title 35, United States Code, §112, I acknowledge the duty to disclose information which is material to patentability as defined in Title 37, Code of Federal Regulations, §1.56 which became available between the filing date of the prior application and the national or PCT international filing date of this application.

Prior U. S. Application(s) or PCT International Application(s) Designating the U.S. for Benefit Under 35 U.S.C. §120:

(Application Number) (Filing Date) (Status: patented, pending, abandoned)


(Application Number) (Filing Date) (Status: patented, pending, abandoned)

I hereby appoint the following attorney(s) and/or agent(s) J. Gordon Lewis, Patent Office Registration No. 28735, Andrew R. Basile, Patent Office Registration No. 24753, William M. Hanlon, Jr., Patent Office Registration No. 28422, and Thomas D. Helmholdt, Patent Office Registration No. 33181, as my attorney(s) and/or agent(s), to prosecute this application and to transact all business in the United States Patent and Trademark Office connected therewith.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under §1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

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